Environment and Natural Resources Trust Fund

M.L. 2022 Approved Work Plan

General Information

ID Number: 2022-089

Staff Lead: Michael Varien

Date this document submitted to LCCMR: June 13, 2022

Project Title: Purple Loosestrife Biocontrol Citizen Science Program

Project Budget: $174,000

Project Manager Information

Name: Katie Sickmann

Organization: Wild Rivers Conservancy

Office Telephone: (715) 483-3300

Email: ksickmann@wildriversconservancy.org

Web Address: www.wildriversconservancy.org

Project Reporting

Date Work Plan Approved by LCCMR: June 27, 2022

Reporting Schedule: March 1 / September 1 of each year.

Project Completion: June 30, 2025

Final Report Due Date: August 14, 2025

Legal Information

Legal Citation: M.L. 2022, Chp. 94, Art. , Sec. 2, Subd. 06b

Appropriation Language: $174,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the Wild Rivers Conservancy to protect and restore native ecosystems by identifying purple loosestrife in priority management areas and engaging, educating, and empowering citizens to use an approved purple loosestrife biocontrol in Minnesota's St. Croix River watershed.

Appropriation End Date: June 30, 2025

Narrative

Project Summary: Purple Loosestrife Biocontrol Citizen Science Program aims to prevent and reduce purple loosestrife by engaging, educating and empowering citizens in using a biocontrol to protect and restore native ecosystems.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Purple loosestrife is an aquatic invasive plant that grows taller and faster than Minnesota's native wetland plants. These advantages and prolific seed production have allowed it to invade many wetlands, sometimes to the near-total exclusion of most other vegetation. In the St. Croix River watershed (MN side) there are approximately 365 recorded populations of purple loosestrife and currently no regional management strategies. According to MN DNR, the state has historically organized and led purple loosestrife efforts, but has not done so in the past 10 years. With purple loosestrife populations continuing to grow and the public's interest peaking, a biological control long-term solution for loosestrife is at the forefront. Galerucella beetles, a biocontrol beetle, can reduce the need for other costlier and disruptive controls, such as herbicides without disrupting native vegetation. Currently, there are no regional citizen science programming being done at the MN DNR, UMN-Extension or MAISRC level to raise biocontrol beetles for purple loosestrife management. These beetles have proven to decreased the vigor, size and seed output of purple loosestrife, allowing native plants to survive and outcompete smaller plants. Though loosestrife elimination is rare, this process offers effective and environmentally sound control of the plant without herbicides.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

This citizen science program, led by the Wild Rivers Conservancy, aims to engage the public and recruit volunteers to help prevent the introduction and reduce the spread of purple loosestrife. There will be mapping efforts to locate purple loosestrife populations in identified priority areas throughout the St. Croix River watershed (MN side). The Galerucella beetles will be raised by volunteers in a citizen science effort. A purple loosestrife beetle program overview and instructional manual will be created to guide the program and provide protocols and standards of procedure for the project. Trainings will provide volunteers with invasive species knowledge, especially pertaining to purple loosestrife, confidence to rear the Galerucella beetles, and the support needed for a successful program. Citizen scientists will share in the fun of rearing the beetles and releasing them into local, infested wetlands in the highest priority areas identified in earlier mapping exercises. Purple loosestrife is here to stay in Minnesota, but citizen scientists can help protect their wetlands, lakes, or rivers from domination by this invader. As the biocontrol beetles reduces the loosestrife, it will aid in helping to restore any native plants the loosestrife may have eliminated locally, further ensuring diverse, healthy wetlands.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

This project will help prevent the spread of purple loosestrife populations that threaten ecological, economic, and recreational integrity of the St. Croix River watershed. By reducing the spread of purple loosestrife with a biocontrol, wetlands, streams, rivers, lake shores and other key natural areas can be protected for future generations. As purple loosestrife populations decrease, areas can be restored with native vegetation creating more biodiversity and natural habitats. The results of this project will also help in efforts to control and predict the future spread of purple loosestrife and can serve as a structure for future state citizen science programming.

Project Location

What is the best scale for describing where your work will take place?

Region(s): NE, SE,

What is the best scale to describe the area impacted by your work?

Region(s): SE, NE,

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Minnesota St. Croix River Watershed Purple Loosestrife Survey

Activity Budget: $53,000

Activity Description:
The Wild Rivers Conservancy will lead extensive mapping efforts in the St. Croix River watershed focusing on priority management areas identified by the Minnesota Department of Agriculture's purple loosestrife management prioritization map created by ENTRF funding in 2017 (Tactical Invasive Plant Management Plan Development). These prioritized management areas include state parks and state forests, national wildlife refuges, regional parks, the St. Croix National Scenic Riverway, and main feeder streams in the St. Croix River watershed like the Kettle, Snake, and Rock Creek. In order to prevent further larger infestations and loss of biodiversity in these key natural areas throughout the watershed, purple loosestrife populations need to be surveyed and reported. All data will be recorded and updated in EDDMapS and maps will be provided to MN DNR, MDA, and other county partners. Once EDDMapS is updated and accurate mapping can be presented of purple loosestrife populations throughout the watershed, areas will be determined by MN DNR, MDA staff and county partners for beetle releases.

Activity Milestones:

Description	Approximate Completion Date
Survey 4 prioritized state parks and 2 state forests for purple loosestrife and update EDDMapS	September 30, 2023
Survey 2 prioritized wildlife refuges, 4 regional parks and 155 miles of the StCroix River	September 30, 2023
40 miles of prioritized main feeder streams in the St. Croix watershed update EDDMapS	September 30, 2023
Develop and produce final report/map, update EDDMapS and provide to MN DNR & project partners	December 31, 2023

Activity 2: Purple Loosestrife Biocontrol Citizen Science Framework Development

Activity Budget: $62,000

Activity Description:
The Wild Rivers Conservancy will collaborate with the MN DNR, MDA, and watershed partners in creating a Purple loosestrife biocontrol overview and instructional manual to help guide the program and provide protocols and standard procedures for the project. Other resources such as purple loosestrife beetle release forms, beetle presence and activity report forms, and biocontrol kit informational forms will be available to participants to ensure volunteers are confident and successful in the beetle rearing process. These resources can also serve as a framework for future statewide citizen science programs. The Conservancy will also work in partnership with MN DNR, MDA, and private landowners to receive approval to dig purple loosestrife and release biocontrol beetles on priority areas identified.

Activity Milestones:

Description	Approximate Completion Date
Coordinate approval from appropriate land managers to dig for purple loosestrife and release biocontrol beetles	February 28, 2024
Develop a Purple Loosestrife Biocontrol Program Overview and Instruction manual to help guide the program	April 30, 2024
Develop purple loosestrife beetle release forms, beetle presence/ activity forms, and biocontrol kit informational forms	April 30, 2024
Collect and organize 50 Purple loosestrife beetle rearing kits to citizen science volunteers	April 30, 2024

Activity 3: Public Outreach and Recruitment for Citizen Scientists to Rear Biocontrol Beetles

Activity Budget: $59,000

Activity Description:

The Wild Rivers Conservancy will reach out to friend's groups, land managers, master gardeners, and schools groups, as well as the general public to recruit volunteers for the program. Participants involved in the program will be provided with all resources necessary to rear purple loosestrife biocontrol beetles (netting, aspirators, Galerucella beetles, structural frames) as well as a timeline and schedule so they know what to expect. This process will empower citizen scientists to raise, rear, and release these biocontrol beetles in areas of heavy purple loosestrife populations and be rewarded by helping to restore healthy native habitats. These efforts will result in increased AIS awareness, detection, prevention, and control by citizen scientists in priority areas across the watershed.

Activity Milestones:

Description	Approximate Completion Date
Recruit 50 volunteers to take part in the purple loosestrife biocontrol citizen science program	June 30, 2024
Host five trainings educating participants about AIS, purple loosestrife, and the biocontrol beetle rearing program	June 30, 2025
Distribute 5 plants per volunteer, 10 beetles per plant, resulting in 125,000 beetles released	June 30, 2025
Hold biocontrol release dates two times a year to release beetles on priority management areas	June 30, 2025
Develop, print, and provide outreach and education materials to support the program	June 30, 2025

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Monika Chandler	Minnesota Department of Agriculture	Noxious and Invasive Weeds and Biological Control Programs	No
Keegan Lund	Minnesota Department of Natural Resources	Aquatic Biologist	No
Susanna Wilson-Witkowski	Chisago County Environmental Services	Water Resource Manager	No
Caleb Anderson	Pine County Planning, Zoning, and Solid Waste Dept.	Land & Resources Manager	No
Matt Downing	Washington Conservation District	AIS Program Coordinator	No
Caitlin Nagorka	St. Croix National Scenic Riverway NPS	Natural Resources Program Manager	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.
Partner collaboration and communication will be essential when disseminating information pertaining to the Purple Loosestrife Biocontrol Citizen Science Program. When priority areas throughout the Minnesota side of the St. Croix River watershed are surveyed, all data will be recorded and updated in EDDMapS and maps will be provided to MN DNR, MDA, and other county partners following the ENTRF acknowledgment guidelines. The Wild Rivers Conservancy will also collaborate with the MN DNR, MDA, and watershed partners in creating a Purple loosestrife biocontrol overview and instruction manual to help guide the program and provide protocols and standard procedures for the project following the ENTRF acknowledgement guidelines. Trainings and workshops will be held to train and educate MN natural resource professionals and volunteers to encourage participation in this biocontrol program. A final report, maps, volunteer engagement report, biocontrol beetle area and number distribution will be distributed to project partners such as the MN DNR, MDA, watershed partners and LCCMR staff. All development of resources pertaining to this project will follow ENTRF acknowledgement guidelines and be made public and shared with partners and can serve as a structure for future state citizen science programming.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?
In the long term, this purple loosestrife biocontrol citizen science program will protect, improve, and restore native ecosystems in the St. Croix River watershed. Developing a citizen science program will empower groups, landowners,

and participants to take action in the long-term protection of public and private lands. These efforts will all either integrate into existing funded programs, or aim to establish community commitment to ensure longevity beyond the funding period. This project has potential to be highly visible to the public, and if successful, could be duplicated in other Minnesota landscapes.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Shoreland Protection for the Lower St. Croix River	M.L. 2015, Chp. 76, Sec. 2, Subd. 08j	$190,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Invasive Species Technician		Project implementation and volunteer coordination			25%	2.25		$110,000
Invasive Species Coordinator		Project oversight and administration			25%	0.75		$47,000
							Sub Total	**$157,000**
Contracts and Services								
							Sub Total	**-**
Equipment, Tools, and Supplies								
	Tools and Supplies	50 purple loosestrife biocontrol beetle rearing kits will provided to participating citizen scientists. Each kit includes netting, pots, cage framework, aspirator and a kiddie pool to hold the plants that serve host to the beetles until they get released.	These kits will be distributed to each volunteer to raise and grow the purple loosestrife, then later rear the Galerucella biocontrol beetle to be released on priority management areas within the St. Croix River watershed.					$8,000
							Sub Total	**$8,000**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	Purple Loosestrife survey's at high priority management areas determined by the Minnesota	These priority management areas in the Minnesota St. Croix River					$5,000

		Department of Agriculture. Survey's will take place at priority areas such as Banning State Park, St. Croix State Park, St. Croix State Forest, Rice Lake Wildlife Refuge, Afton St. Park, Lake Elmo Regional Park, Rice Creek Chain of Lakes Preserve, William O'Brien State Park, Kettle River, Snake River, Sunrise River and the St. Croix River resulting in approximately 8,923 miles at $0.56/mile or current federal rate.	watershed need to be surveyed for purple loosestrife to update EDDMapS records and data to then asses populations and start long-term management strategies using the purple loosestrife biocontrol beetle.					
							Sub Total	**$5,000**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
	Printing	A purple loosestrife biocontrol program overview and instruction manual will be made to help guide the program, this will include protocols, standard of procedure and purple loosestrife biocontrol beetle 'how-to' rearing instructions. 100 manuals will be printed and made available to volunteers, partners and those interested.	A standard of procedures/ instructional manual needs to be developed and made available to citizen scientist volunteers to guide them in their biocontrol beetle rearing. MN DNR, MAISRC and UMN-Extension have stated that there is no current available document to lead a purple loosestrife biocontrol program so once this is developed and printed for volunteers, it can be used and duplicated in other Minnesota landscapes.					$1,500
	Printing	Public outreach and education materials about the purple loosestrife biocontrol program will be printed and distributed participants, partners and the general public. 2,000 resource materials will be developed, printed and provided in different outreach forms such as brochures, flyers, and rack cards.	These different public outreach and education materials will aid in program awareness and general education of both purple loosestrife, the biocontrol Galerucella beetle and the purple loosestrife biocontrol citizen science opportunity to rear and release purple loosestrife beetles to help prevent and reduce the spread of loosestrife and protect and restore native aquatic habitats.					$2,500

							Sub Total	**$4,000**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$174,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
			State Sub Total	**-**
Non-State				
Cash	Minnesota County contributions First year secured, additional years funding pending	These funds will aid in purple loosestrife monitoring and management throughout participating counties in the Minnesota St. Croix River watershed.	Pending	$10,000
Cash	National Park Service	These funds aid in the monitoring and management of purple loosestrife along the St. Croix River. Future support and funding will also aid in the purple loosestrife biocontrol program along the St. Croix National Scenic Riverway land.	Secured	$15,000
In-Kind	Volunteer Match	This funding will be from volunteers helping with digging the purple loosestrife root stock in the spring to then raise the Galerucella biocontrol beetle. This will also support rearing cage maintenance and time put forth to rear and release the beetles at projected priority sites.	Pending	$10,000
			Non State Sub Total	**$35,000**
			Funds Total	**$35,000**

Attachments

Required Attachments

Visual Component

File: 8ce7617b-ae1.pdf

Alternate Text for Visual Component

This map shows the Minnesota portion of the St. Croix River watershed that encompasses Carlton, Aitkin, Kenabac, Isanti, Mille Lacs, Pine, Chisago, Washington, Anoka, and Ramsey Counties. Minnesota Department of Agriculture provided their purple loosestrife management priority map which shows different priority areas of the watershed....

Financial Capacity

File: 08beecad-f9c.pdf

Board Resolution or Letter

Title	File
SCRA Board Resolution for PLB Citizen Science Biocontrol Program LCCMR Grant	eab02ea8-282.pdf

Optional Attachments

Support Letter or Other

Title	File
Pine County Letter of Support	82a442b7-df3.pdf
Background Check Certification Form	0ddde242-d7c.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

Organization updates were made due to a name change from St. Croix River Association to Wild Rivers Conservancy that happened in 2021 as well as an address update due to a change in office locations. Katie Sickmann's title was changed from Invasive Species Coordinator to Natural Resources Coordinator. Project Collaborators and partners were added to the work plan as well as adding a milestone in Activity 3 to address development of resources, printing, etc of Purple loosestrife materials.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I agree to the Commissioner's Plan.

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

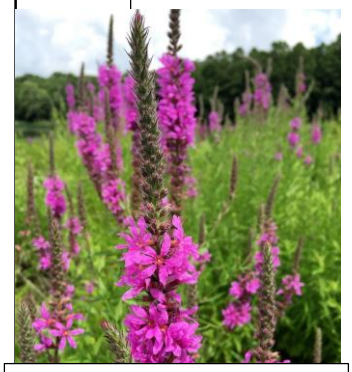
Does the organization have a fiscal agent for this project?

No

Purple Loosestrife Biocontrol Citizen Science Program

St. Croix River Association, FY2022

This project aims to monitor priority areas throughout the St. Croix River watershed for Purple loosestrife. Biocontrol management efforts will be targeted towards the high & medium priority areas. 40 volunteers throughout this ten county watershed will be recruited to raise and release biocontrol beetles for long term management.



Purple Loosestrife
Aquatic Invasive Species

Aitkin

Carlton

Pine

Mille Lacs

Kanabec

Chisago

Isanti

Anoka

Washington

Ramsey

Banning State Park

St. Croix State Forest

St. Croix State Park

St. Croix National Wild & Scenic Riverway

Kettle River

Snake River

Sunrise River

Chisago Lakes Lake Improvement District

Rice Creek Chain Regional Park

William O'Brien State Park

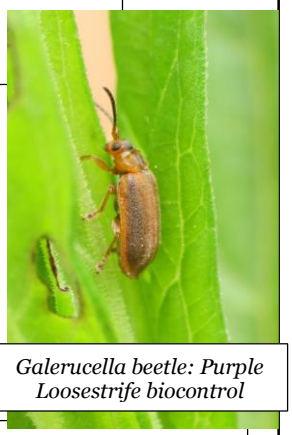
Lake Elmo Regional Park Reserve

Afton State Park

St. Croix River Watershed Boundary

Purple Loosestrife Management Priority Rank

- High
- Medium
- Low
- Lowest



Galerucella beetle: Purple Loosestrife biocontrol

Areas to be Monitored

- Purple Loosestrife Populations
- Priority State Forest
- Priority State & Regional Land
- Priority Waterways

Purple loosestrife management priority data was supplied from the Minnesota Department of Agriculture. They created this with ENTRF funding in 2017 (*Tactical Invasive Plant Management Plan Development*). High priority areas surround areas of high density to prevent further large infestations and loss of biodiversity. Purple loosestrife population data was transferred over from previously recorded EDDMapS reports.